COMPATIBILITY DETERMINATION

USE: Trapping – Furbearer Management

REFUGE NAME: Blackwater National Wildlife Refuge

DATE ESTABLISHED: January 23, 1933

ESTABLISHING AND ACQUISITION AUTHORITY(IES):

- Migratory Bird Conservation Act of 1929, as amended, {16 U.S.C. 715d}.
- Endangered Species Act of 1973 {16 U.S.C. 1534}.
- Refuge Recreation Act of 1966, as amended, {16 U.S.C. 460k-1}.
- North American Wetlands Conservation Act {16 U.S.C. 4401-413}.
- Refuge Administration Act {16 U.S.C. 668ddb}.

REFUGE PURPOSE(S):

- "…for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." 16 U.S.C. § 715d (Migratory Bird Conservation Act).

- "…to conserve (A) fish or wildlife which are listed as endangered or threatened species...or (B) plants." 16 U.S.C. § 1534 (Endangered Species Act of 1973).

- "...suitable for -- (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species..." 16 U.S.C. § 460k-1 (Refuge Recreation Act).

- "…(1) to protect, enhance, restore, and manage an appropriate distribution and diversity of wetland ecosystems and other habitats for migratory birds and other fish and wildlife in North America; (2) to maintain current or improved distribution of migratory bird populations; and (3) to sustain an abundance of waterfowl and other migratory birds consistent with the goals of the North American Waterfowl Management Plan and the international obligations contained in the migratory bird treaties and conventions and other agreements with Canada, Mexico, and other countries." 16 U.S.C. § 4401-413 (North American Wetlands Conservation Act).

- "…to protect, enhance, restore, and manage wetland ecosystems and other habitats for migratory birds, endangered and threatened species, and other wildlife." 16 U.S.C. § 668ddb (Refuge Administration Act).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

The mission of the National Wildlife Refuge System (Refuge System) is to administer a national network of lands and waters for the conservation, management, and where appropriate,

restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

DESCRIPTION OF USE:

(a) What is the use? Is it a priority public use?

The use is trapping for furbearer management at Blackwater National Wildlife Refuge (NWR) in Maryland. We consider furbearer management to be a refuge management economic activity. It is not a priority public use of the Refuge System under the Refuge System Administration Act of 1966, as amended by the Refuge System Improvement Act of 1997 (Public Law 105-57).

Background for the Management Activity

When the refuge was surveyed prior to acquisition in 1933, it was noted that the production of furbearers—primarily muskrats—in the Blackwater area was unsurpassed on the East Coast. The original acquisition of approximately 8,000 acres was from an investment partnership, "Delmarvia Fur Farms," which hired a number of local trappers to harvest muskrats and other furbearers during the winter months. After acquisition in 1933, "Delmarvia Fur Farms" continued to lease the land for several years. In 1935, a total of 38,000 muskrats were harvested from the property. After the lease arrangement had expired, the refuge continued to utilize local trappers to harvest muskrats and partnered with these trappers in marketing pelts to commercial fur buyers. The trapping program was then implemented as a means of reducing muskrat populations and damage to wetlands, as well as an economic use (USFWS 1973). Significant marsh loss observed in the late 1930s was attributed to extremely high muskrat populations. Trapping was also utilized to control predator populations (fox, raccoons, skunk, and opossums) which were consistent with current policy at that time for increasing waterfowl populations. In the early 1970s, refuge trapping leases were selected by lottery and 3 trappers were selected for 3 year contracts. This process later evolved to public bidding for annual leases of 10 to 17 trapping units which were drawn utilizing natural features as boundaries.

This program has been historically dependent upon the international fur markets for maintaining interest and generating funds. When markets were strong in the early 1970s, the refuge received in excess of $15,000 in annual bids and over 30 bidders competed for 10 to 15 trapping units. As markets diminished due to the unpopularity of wearing furs, interest in the program also declined. Currently the refuge has a cadre of 10 to 15 local trappers which bid a total of $5,000 to $9,000 annually for trapping rights.

(b) Where would the use be conducted?

Furbearer management activities will be conducted primarily in refuge marshlands, with a trapping prohibition near eagle nests, roads, public use areas, and other sensitive sites. The main emphasis will be on trapping muskrats and nutria. There will be some take of other legal furbearer species including raccoons, opossums, skunks, and foxes. Some upland activities may be permitted but will be restricted by methods and access due to conflicts with Delmarva Peninsula fox squirrels, waterfowl use, and public use activities.

Trapping occurs throughout the refuge marshlands, and would be allowed on new lands acquired as part of the refuge. However, this use would be evaluated on a yearly basis, and areas may be closed to trapping if it is determined that this management activity directly conflicts with other user groups or biological goals and objectives. If a conflict is observed, trappers would be notified and a special condition(s) to remedy the situation would be attached to the Special Use Permit (SUP).

(c) When would the use be conducted?

Furbearer management activities will always occur within the framework of the Maryland trapping season. Normally, trapping will occur between the dates of January 1 and March 15 consistent whenever possible with Maryland seasons trapping.

(d) How would the use be conducted?

The furbearer management program is, and will continue to be implemented, through the refuge SUP process and within the Maryland regulatory framework. A news release will annually announce the opening of refuge trapping units for public bidding. Trapping units will be opened for inspection during set dates, and an annual public meeting will be scheduled to review regulations and restrictions for that year. A schedule and an established public bidding process will be released each year. Once prospective trappers have paid their bid amount, a SUP will be issued that describes authorized activities, access, timing, special circumstances, and other conditions necessary to ensure a responsible and successful trapping program. The section "Stipulations necessary to ensure compatibility" that follows will add additional necessary detail.

Trappers must follow State regulations and trapping seasons on refuge lands. Refuge-specific regulations are provided to each trapper under "special conditions" of the issued SUP. The refuge would allow furbearer management for the following target species: muskrat, nutria, raccoon, grey fox, red fox, skunk, and opossum.

A harvest report is required from each trapper following the close of the trapping season. The report includes data about the number of target and non-target species harvested, the refuge areas trapped, and remarks on observations of wildlife or other noteworthy ecological information. These data are used to monitor impacts of this use on populations of furbearers. The report must be completed and returned by a specified date or the user will forfeit his/her opportunity to participate in the program the following year.

(e) Why is the use being proposed?

Trapping on refuges is considered a refuge economic use, per U.S. Fish and Wildlife Service (Service, USFWS) policy (603 FWS 2, part 2.6 (N)). As per the Code of Federal Regulations (CFR), we may only allow economic uses of a refuge natural resource where the use contributes to achieving refuge purposes or the Refuge System mission (50 CFR 29.1). We conduct furbearer management: (1) as a wildlife management tool that can maintain sustainable populations and habitat quality; and (2) as a mechanism for collecting data on species, primarily nutria, that otherwise would be expensive and difficult to obtain using refuge resources.

Trapping is an activity used to manage and control furbearer populations. Muskrat populations are known to experience dramatic fluctuations over time (Smith 1938, Dozier 1947). When

muskrat populations are high, the resulting herbivory can completely remove the existing vegetation from an area, including the root systems that bind the organic soils together (O'Neil 1949). Some marshes rapidly revegetate after such an event, but if damage is severe it can have lasting impacts on wetland health. Marshes of the Blackwater River receive very little sediment from external sources (Ganju et al. 2013), and vertical development of the marsh platform is particularly dependent on organic accretion driven by below-ground biomass production (Cahoon et al. 2010). Much of the existing marsh on the Blackwater River is low in elevation relative to local tides, meaning the ability of the marsh to maximize below-ground biomass production and keep pace with relative sea level rise is compromised (Kirwan and Guntenspergen 2012). Severe muskrat herbivory can potentially contribute to habitat loss in this already distressed tidal wetland system. Furbearer management is a cost effective means for potentially reducing detrimental impacts of muskrat herbivory on Blackwater River tidal marshes.

This program also facilitates efforts of the Chesapeake Bay Nutria Eradication Project. As of 2016, nearly all nutria have been removed from the Delmarva Peninsula. Annual trapping activities serve as an effective monitoring program for verifying eradication and removal of any residual nutria. Moving forward, the furbearer management program will be critical in maintaining ongoing surveillance of potential recolonization and removal of any detected individuals.

A compatibility determination for the furbearer management program on Blackwater NWR was completed as part of the refuge's Comprehensive Conservation Plan (CCP) (USFWS 2006). That review determined that furbearer management activities will not materially interfere with or detract from the mission of the Refuge System or the purposes for which the refuge was established. The current compatibility determination is the mandatory 10-year reevaluation of the 2006 determination. There have been no significant changes to the furbearer management program on the refuge since the 2006 determination.

AVAILABILITY OF RESOURCES:

The financial resources necessary to provide and administer this use at its current level are now available, and we expect them to be available in the future. The refuge manager will provide overall administration of the program. A wildlife biologist will evaluate furbearer activity, potential and current impacts on refuge resources, and potentially prescribe harvest objectives or quotas. The biologist will also evaluate trapper data, compile trapping reports, and help process SUPs. The refuge's federal wildlife officer, in coordination with other law enforcement agencies, will check refuge trappers and ensure compliance with State and refuge regulations.

The following is the list of projected costs to the refuge required to administer and manage the trapping program:

Annual Costs

Law Enforcement	$2,000
Biological staff time (program oversight):	$2,500

Material costs:	$100
Total:	**$4,600**

ANTICIPATED IMPACTS OF THE USE:

General Impacts of Public Use:
Direct impacts are those impacts immediately attributable to an action. Indirect impacts are those impacts that are farther in time and in space. Effects that are minor when considered alone, but collectively may be important are known as cumulative effects. Incremental increases in activities by people engaged in the variety of allowed uses on the refuge could cumulatively result in detrimental consequences to wildlife and/or habitats. Refuge staff will monitor these activities to ensure wildlife resources are not impacted in a detrimental manner.

In this compatibility determination, some of the anticipated impacts are not considered major or significant, and are often described as either negligible or minor. The magnitude of such changes is defined as follows:

- Negligible–Management actions would result in impacts that would not be detectable or if detected, would have effects that would be considered slight, localized, and short-term.
- Minor–Management actions would result in a detectable change, but the change would be slight and have only a local effect on the community, the resource, or ecological processes. The change would be discountable, insignificant, and of little consequence and short-term in nature.

Between 2011 and 2015, an average of 11 trappers harvested approximately 13,500 muskrats on Blackwater NWR and generated almost $167,000 in total trapping revenue. Thus, our determination considers these factors in our overall analysis. The environmental, socioeconomic, and cultural/historical impacts of this program are thoroughly described in the Environmental Assessment (EA) prepared for the Chesapeake Marshlands NWR Complex's CCP (USFWS 2005).

Trapping provides additional wildlife-dependent economic opportunities and can foster a better appreciation and more complete understanding of the wildlife and habitats associated with Delmarva ecosystems. This can translate into more widespread and stronger support for wildlife conservation, the refuge, the Refuge System, and the Service.

Impacts to furbearers
Trapping activities harvest and remove individuals from populations of the permitted furbearer species. The anticipated direct impacts of trapping on wildlife would be a temporary reduction of furbearer populations in those areas where surplus furbearers exist (Clark 1987). Muskrat populations are known to experience dramatic fluctuations over time, often responding to variations in habitat conditions (Smith 1938, Dozier 1947).

Harvest reports indicate an average of 2,677 muskrats were harvested per year on Blackwater NWR during the 2011 to 2015 seasons. During this same period, a total of 55 raccoon, 4

opossum, and 6 red fox were also harvested. No skunks, grey fox, or nutria were harvested through the furbearer management program during this period. With the exception of nutria, population indices are tracking with the expected ranges of year-to-year cyclic variations and appear stable (H. Spiker, Maryland Department of Natural Resources (DNR), personal communication June 2, 2016).

Impacts to Delmarva Peninsula fox squirrel

The Delmarva Peninsula fox squirrel (*Sciurus niger cinereus*), a subspecies of the eastern fox squirrel found only on the Delmarva Peninsula, was until very recently listed as Endangered on the Federal List of Endangered and Threatened Wildlife. It inhabits mature forests of mixed hardwoods and pines within the agricultural landscapes of the peninsula. Historically, this subspecies had a patchy distribution throughout most of the Delmarva Peninsula and into southern Pennsylvania, but by the time of its listing in 1967 remnant populations occurred in only four Maryland counties, including Blackwater NWR (Taylor 1976). After listing, the hunting season for this subspecies was closed, and recovery efforts focused on expanding the squirrel's distribution through translocations. In addition, new populations have been discovered since the time of listing and there are now many more acres of forest known to be occupied by the subspecies. The determination was made that the subspecies is now sufficiently abundant and well distributed to withstand foreseeable threats. The subspecies was removed from the Federal List of Endangered and Threatened Wildlife effective December 16, 2015.

The furbearer management program has been successfully implemented for many years without conflicts with maintaining healthy populations of Delmarva Peninsula fox squirrels on the refuge. While the subspecies is no longer listed, the furbearer management program will continue to maintain restrictions to minimize impacts.

Impacts to other wildlife

Non-target species could be captured incidentally through this trapping program. Traps set specifically in areas where target species are active reduces the risk of taking non-target species. The experience of the trappers, use of species-appropriate techniques, and the selection of the appropriate trap size will minimize non-target captures (NEFRTC 1996, Boggess et al. 1990). For example, muskrat have been successfully trapped for many years on the refuge without incidental take of river otter. This has been accomplished through the use of appropriate trap sizes and by avoiding areas with river otter activity or sign.

Trappers may temporarily disturb wildlife while driving roads and walking to their trap sets. Disturbances will vary by wildlife species involved and the type, level, frequency, duration, and the time of year activities occur. Excessive disturbance can cause shifts in habitat use, abandonment of habitat, and increased energy demands on affected wildlife (Knight and Cole 1991). Trapping activities are typically restricted to January through March. During this time of year, disturbance can be a concern for nesting and roosting bald eagles and wintering waterfowl. The furbearer management program is administered in a way that allows only one permittee per trapping unit. That trapper and their assistant typically access their assigned area once per day, minimizing the potential disturbance from their activities. Additionally, SUP conditions prohibit trapping within 200 yards of any eagle nest and restrict access around eagle roosts.

Impacts to aquatic systems

The furbearer management program will have beneficial impacts to aquatic systems on and around the refuge. Muskrat populations are known to experience dramatic fluctuations over time (Smith 1938, Dozier 1947). When muskrat populations are high, the resulting herbivory can completely remove the existing vegetation from an area, including the root systems that bind the organic soils together (O'Neil 1949). Some marshes rapidly re-vegetate after such an event, but if damage is severe it can have lasting impacts on wetland health. Marshes of the Blackwater River receive very little sediment from external sources (Ganju et al. 2013), and vertical development of the marsh platform is particularly dependent on organic accretion driven by below-ground biomass production (Cahoon et al. 2010). Much of the existing marsh on the Blackwater River is low in elevation relative to local tides, meaning the ability of the marsh to maximize below-ground biomass production and keep pace with relative sea level rise is compromised (Kirwan and Guntenspergen 2012). Severe muskrat herbivory can potentially contribute to habitat loss in this already distressed tidal wetland system. Furbearer management is a cost effective means for potentially reducing detrimental impacts of muskrat herbivory on Blackwater River tidal marshes. Additionally, the program will be instrumental in providing ongoing surveillance of potential nutria recolonization and removal of any detected individuals.

Conflicts with other public uses

A program of regulated furbearer management on the refuge as described under this compatibility determination is not expected to conflict with other public uses. Conflicts are not expected because trapping is generally an inconspicuous activity, traps are usually hidden from view, and most of the trapping takes place in areas closed to the general public. These characteristics serve to limit the potential for encounters between traps or captured animals and those engaged in other public use activities. The refuge has a history of regulating trapping over several decades and has not had significant conflict in the past, nor do we anticipate any in the future.

Other effects

Regulated trapping has been documented to provide a variety of ecological benefits including prevention and alleviation of habitat degradation, facilitation of habitat and wildlife restoration, dampening of disease transmission and severity of disease outbreaks among wildlife and between wildlife and humans, maintaining the integrity of infrastructure, and the conservation and enhancement of biological and genetic diversity (Boggess et al. 1990, Organ et al. 1996).

Refuge marshlands are documented to be currently stressed by rising sea levels, increased salinity, and land subsidence. It has been noted that further impacts from excessive herbivory causes permanent vegetation loss. Much of the over 5,000 acres of tidal wetlands that converted to open water between 1938 and 2006 can be attributed to relative sea level rise and excessive herbivory from nutria. The furbearer trapping program is important in helping minimize muskrat damage to tidal marshes. Annual trapping activities also serve as an effective monitoring program for verifying eradication and removal of any residual nutria. The furbearer management program will be critical in maintaining ongoing surveillance of potential recolonization and removal of any detected individuals.

Regulated trapping is an important means to minimize the transmission of diseases for the benefit of both the wildlife and humans. A healthy population is one that exists within the limits that the habitat can support. If a population exceeds its carrying capacity, factors like starvation or disease can force a re-balancing. Disease in wildlife is often linked to a high population density allowing easier transmission of the disease through contact (Herman 1969). Some furbearer diseases, such as rabies, sarcoptic mange, raccoon roundworms, plague, murine typhus, tularemia, and salmonellosis can also affect humans (Cheng 1973). Trapping can help reduce the local density of furbearers which can decrease the potential spread of disease and contact with humans. Regulated trapping is the most efficient and practical way to regularly maintain furbearer populations at no cost to the public. Regulated trapping will not eradicate diseases, but it may help control the transmission of disease (NEFRTC 2015).

Cumulative effects on the environment result from incremental effects of a proposed action when these are added to other past, present, and reasonably foreseeable future actions. While cumulative effects may result from individually minor actions, they may, viewed as a whole, become substantial over time. Trapping for furbearer management has been designed to be sustainable through time given relatively stable conditions.

The cumulative impact of trapping on furbearer populations at Blackwater NWR is negligible when compared to Statewide populations and approved harvest levels.

Because of the regulatory process for harvest management in place within the Service, the setting of the trapping season largely outside the breeding seasons of resident and migratory wildlife, and the ability to adapt refuge-specific regulations to changing local conditions, we anticipate no direct or indirect cumulative effects on resident wildlife, migratory birds, and non-hunted or trapped wildlife on Blackwater NWR.

PUBLIC REVIEW AND COMMENT:

This compatibility determination will be submitted for a 14-day public review and comment period. Additionally, this furbearer management program is nearly identical to that which was evaluated in the 2006 EA for the Draft CCP for the Chesapeake Marshlands NWR Complex (USFWS 2005, USFWS 2006). The program went through extensive public comment and review during the development of the EA and CCP.

DETERMINATION (CHECK ONE BELOW):

_____ Use is not compatible

__X__ Use is compatible, with the following stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

Trapping programs, virtually identical to the one being proposed, have been conducted on Blackwater NWR for more than 80 years. The following stipulations have evolved over the

years and are structured to ensure compatibility. If monitoring indicates that this use does not "contribute to the achievement of the national wildlife refuge purpose or the National Wildlife Refuge System mission," we will modify or eliminate the use.

1. Trapping on Blackwater NWR for muskrat, nutria, skunk, raccoon, opossum, red fox, and grey fox will be in accordance with Maryland State law subject to the special conditions specified in the SUP. Trapping on Blackwater NWR takes place within state identified seasons and on refuge lands and waters identified as trapping units. Only those refuge lands identified as trapping units are open to trapping.

2. The use of fire or the discarding of lighted materials upon any portion of Blackwater NWR is prohibited.

3. Trappers, helpers, and apprentices, must possess a valid Maryland full season hunting license, Individual Furbearer Permit, a valid government-issued photo identification, and a valid trapping SUP issued by the refuge, on their person at all times while on refuge property.

4. Trapping is permitted between one half hour before sunrise to sunset, unless specified otherwise. Access to units containing eagle roosts will be permitted only between the hours of 8 a.m. to 4 p.m. Areas with eagle roosts will be identified in the SUP.

5. Ingress and egress through the refuge, as well as parking and access routes, shall be designated by the refuge manager. The refuge manager reserves the right to restrict traffic on any refuge access roads due to weather, wet conditions, eagle nest construction, etc. Permittees are responsible for any damage they cause to refuge roads during bad weather, wet conditions, etc.

6. All croplands, woodlands, and impoundments in the area between the Wildlife Drive and Key Wallace road are closed to trapping to prevent waterfowl disturbance.

7. No trapping will be permitted within 200 yards of any eagle nest on or adjacent to the refuge.

8. Off road vehicles (all-terrain vehicles (ATV), marsh buggies, trail bikes, etc.) are prohibited for use on refuge lands. Air boats and air boat use are prohibited on refuge waterways.

9. Setting any trap in the vicinity of river otter sign and/or activity is prohibited to prevent the accidental taking of river otter. Use or possession of Conibear type 330 is prohibited. Foothold traps normally used for otter are prohibited. Any foothold trap with a jaw spread of more than 4 inches must be approved by the refuge manager. Use or possession of snares of any description is prohibited. Bait sets with foothold traps are not permitted. The uses of foothold trap sets around an animal carcass–draw station–are prohibited.

10. Use of Conibear type size 220 traps will not be permitted within 100 feet of the paved portion of the state/county highway on units D, F, J, K, and O. Use of Conibear type size 110 traps are permitted along roadways provided traps are set below marsh level.

11. Trapping is permitted in upland areas by use of live traps only, unless written permission from the refuge managers allows the use of foothold traps.

12. Permittees are responsible for state regulations. If an extenuating circumstance becomes apparent whereas the permittee may have an issue checking traps, they must advise the refuge manager in advance (at least 24 hours' notice). With written permission from the manager, the permittee may send another individual in the unit to check their traps.

13. The permittee is required to complete a trapping report to include all species taken and any incidental catches of non-target species in their Trapper Report. All issued keys and a completed trapping report must be return to the refuge manager or designee within 15 days of the conclusion of trapping on the refuge, unless otherwise extended by the refuge manager.

14. Permittees and their helpers are required to close refuge gates upon entering and exiting, leaving gates as they are found. If the gate is closed and locked when entering, permittees are required to close the gate but not required to lock the gate until they leave the unit.

15. All trappers must be 18 years of age and obtain a trapping SUP. Trappers must designate their helpers and or apprentices. SUPs are nontransferable. The trapper is the permittee. Permittee must be present on area when trapping is carried out. If helper is less than eighteen years of age, written authorization from the refuge manager is required.

16. Failure by the permittee or his helper to comply with any of the above provisions or the violation by him of any of the refuge regulations or of any State law or regulation applicable to trapping on said refuge, not only shall render him subject to prosecution under said laws and regulations, but shall constitute cause for the revocation of this permit and for refusal of a permit for trapping fur animals during the next following open season or for any other use of privilege on the refuge for which a permit may be required by regulations. This permit may be terminated at any time by agreement between the issuing officer and the permittee; it may be revoked by the issuing officer for non-use.

17. SUPs are not transferable, and no privilege hereunder may be sublet or made available to any person or interest not a party hereto without the approval of the refuge manager.

18. One individual may be awarded two units; only one unit will be awarded if bidder makes written statement to that effect on trapping bid.

19. Any permittee who traps a nutria is required to bring the animal to the refuge so that necessary information can be collected.

20. Furbearer carcasses or parts are not to be disposed of within 100 feet from any public road, refuge roadway, or trail.

JUSTIFICATION:

Based on the analysis presented above, we have determined that allowing trapping on Blackwater NWR would contribute to the mission of the Refuge System and the purposes for which the refuge was established. Furbearer management through trapping on the refuge is a useful tool in maintaining balance between furbearers and their habitat. Refuge marshlands are documented to be currently stressed by rising sea levels, increased salinity, and land subsidence. The furbearer trapping program is important in helping minimize muskrat damage to tidal marshes. Annual trapping activities also serve as an effective monitoring program for verifying eradication and removal of any residual nutria. The furbearer management program will be critical in maintaining ongoing surveillance of potential recolonization and removal of any detected individuals. Trapping also helps build appreciation for natural resources, ecological awareness, and support for the Refuge System.

Furbearer populations are stable in Maryland, and since its inception, the furbearer management program has not had any known negative impacts on furbearer populations. Second, because of the timing of the activity and low number of permittees, adverse impacts to wildlife and habitat are expected to be minimal. Stipulations put in place will ensure the program has no negative impacts on wintering waterfowl or bald eagles.

Our determination is based on existing, available information, including our own observations. Should we learn that there are adverse impacts we did not anticipate, either from monitoring the use or from other reliable sources, we will modify the use and the stipulations to avoid or minimize potential adverse impacts as swiftly as possible.

Signature: Refuge Manager: _____
(Signature and Date)

Concurrence: Regional Chief: _____
(Signature and Date)

Mandatory 10-year re-evaluation date: _____
(Date)

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